



GEOSPATIAL ANNOTATION

A GUIDE FOR ML TEAMS & GIS EXPERTS

Table of Contents

Setting Up Geospatial Annotation	03
Who Is This Guide For?	04
Industry-Specific Use Cases	04
Working with Geospatial Data	06
Types of Annotations	12
Data Annotation Techniques	14
Data Processing Techniques	16
Our Best Practices	17
Annotation Tools and Software	18
Leveraging AI and Automation	21
Challenges	21
Proven Solutions	23
Scaling Geospatial Annotation	24
Outsourcing vs. In-House Annotation	24
Our Expertise	26
Why Choose Label Your Data	26

How to Set Up Your Geospatial Annotation Workflow

Working with geospatial data, like satellite imagery, drone footage, or GIS layers, comes with unique challenges. Think of scale, resolution, multilayered data complexity, the list goes on.

We understand that many teams rely on open-source tools or freelancers for annotation, but as projects grow, so do the challenges. Errors, slow workflows, and difficulty keeping up with new maps can make in-house annotation unsustainable.

This guide will help you transition to more efficient solutions that can scale with your needs. Read on to find solutions to the most common challenges in data annotation for geospatial projects.



Who Is This Guide for?

ML engineers

- Lack of high-quality geospatial data for model training.
- Time-consuming annotation workflows interrupting development tasks.
- Need for precise and scalable annotation tools for large dataset.

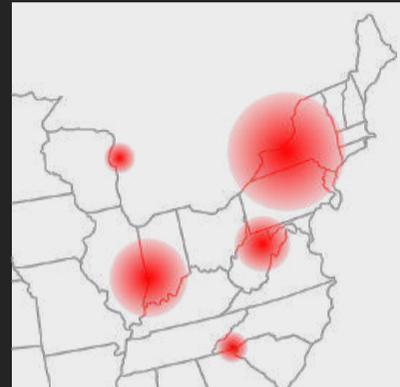
Data scientists

- Difficulty ensuring annotation accuracy and consistency across complex geospatial data.
- Managing the balance between automation and human input.
- Insufficient domain expertise to handle unique geospatial features.

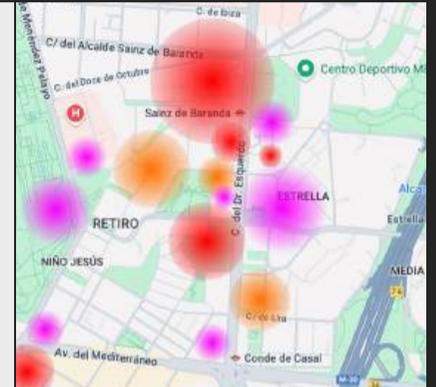
GIS experts

- Limited access to advanced ML tools for geospatial data annotation.
- Overcoming technical challenges with labeling multi-layered spatial data.
- Integration issues with existing GIS systems and data formats.

Industry-Specific Use Cases of Geospatial Annotation



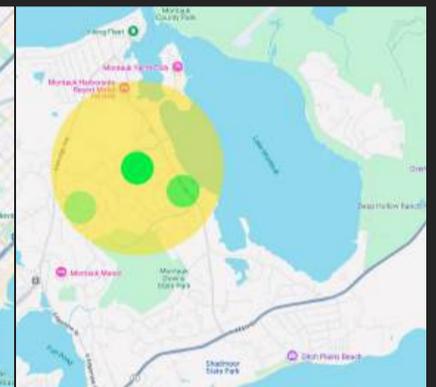
Fraud and Abuse



Retail



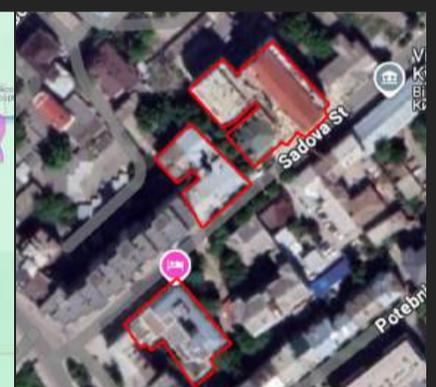
Financial Services



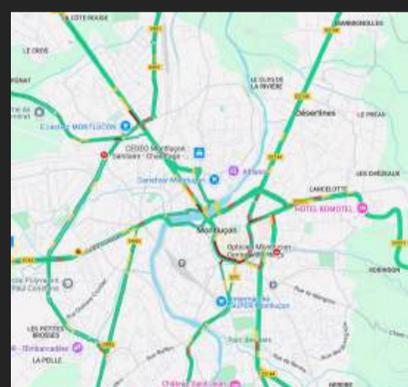
Healthcare



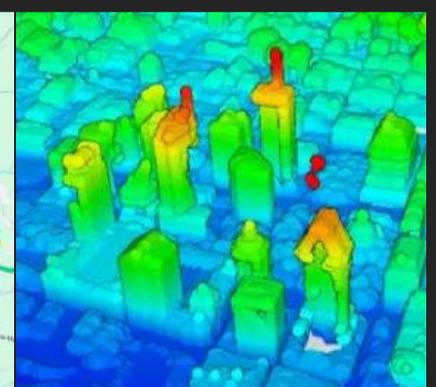
Disaster Recovery



Defence and Intel



Infrastructure



Energy



Geospatial data annotation plays a vital role in various industry projects that depend on accurate and customized labeling.



Autonomous Vehicles and Transportation

Map accuracy and real-time decision-making.

Object detection and navigation using LIDAR, radar, and camera data.



Environmental Monitoring and Climate Research

Tracking environmental changes through satellite imagery.

Supporting conservation and climate strategies.



Urban Planning and Smart Cities

Infrastructure optimization.

Resource management for multi-layered, complex maps.



Defence and National Security

Surveillance and terrain analysis.

Threat detection and reconnaissance.



Agriculture

Optimizing irrigation.

Monitoring crop health.



Construction

Planning and site monitoring.

Managing infrastructure development.



Aerospace and Defense

Aerial imagery labeling for threat detection.

3D model development for military operations.



Logistics and Supply Chain

Route optimization.

Refining transportation and distribution networks.



Disaster Response and Management

Mapping affected areas for emergency response.

Enhancing rescue operations and recovery efforts.



Forest and Wildlife Conservation

Monitoring forest conditions.

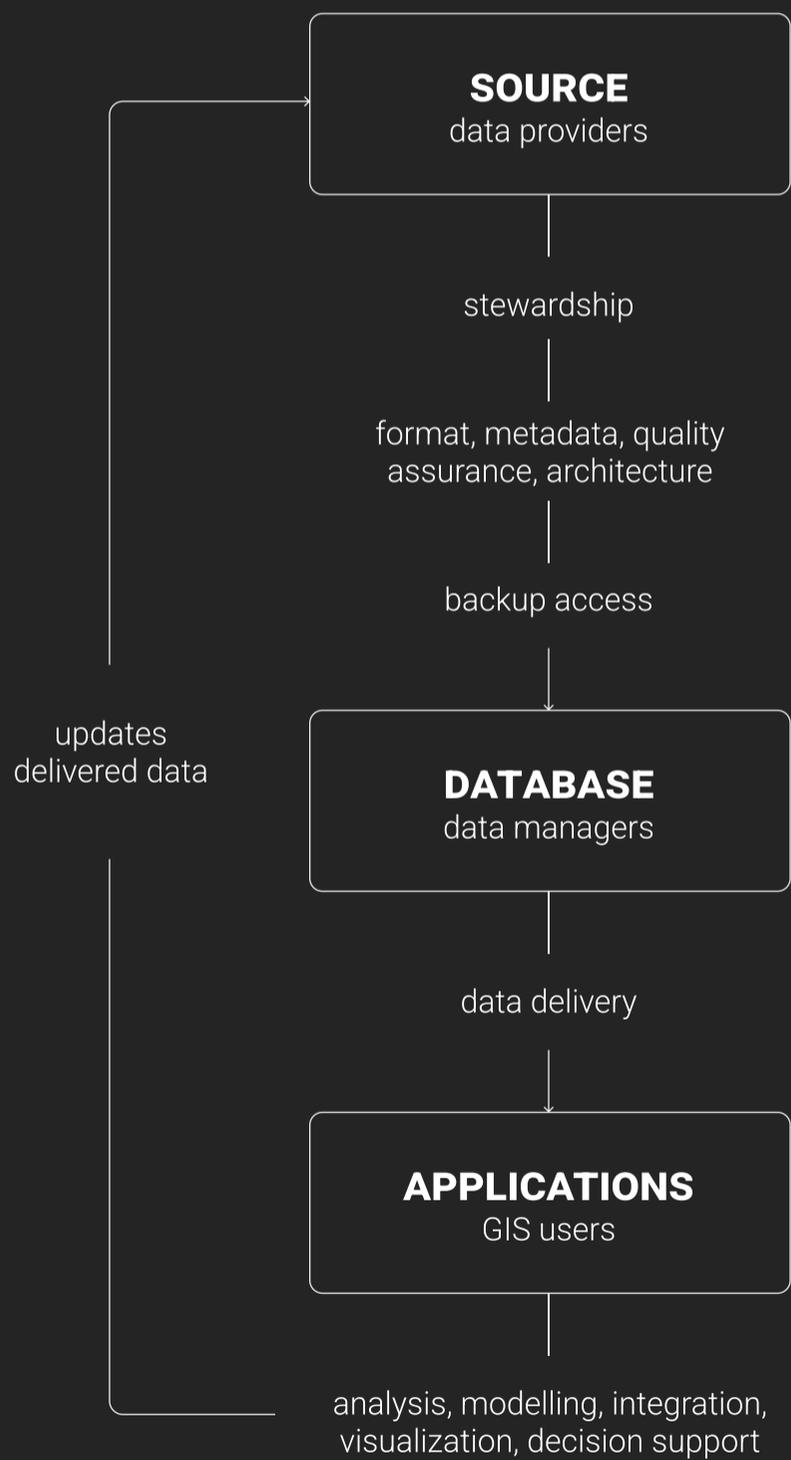
Detecting deforestation and preserving biodiversity.



What Is Geospatial Data and How to Work with It

Understanding geospatial annotation starts with grasping the nature of the data used for this task.

Geospatial Data Cycle



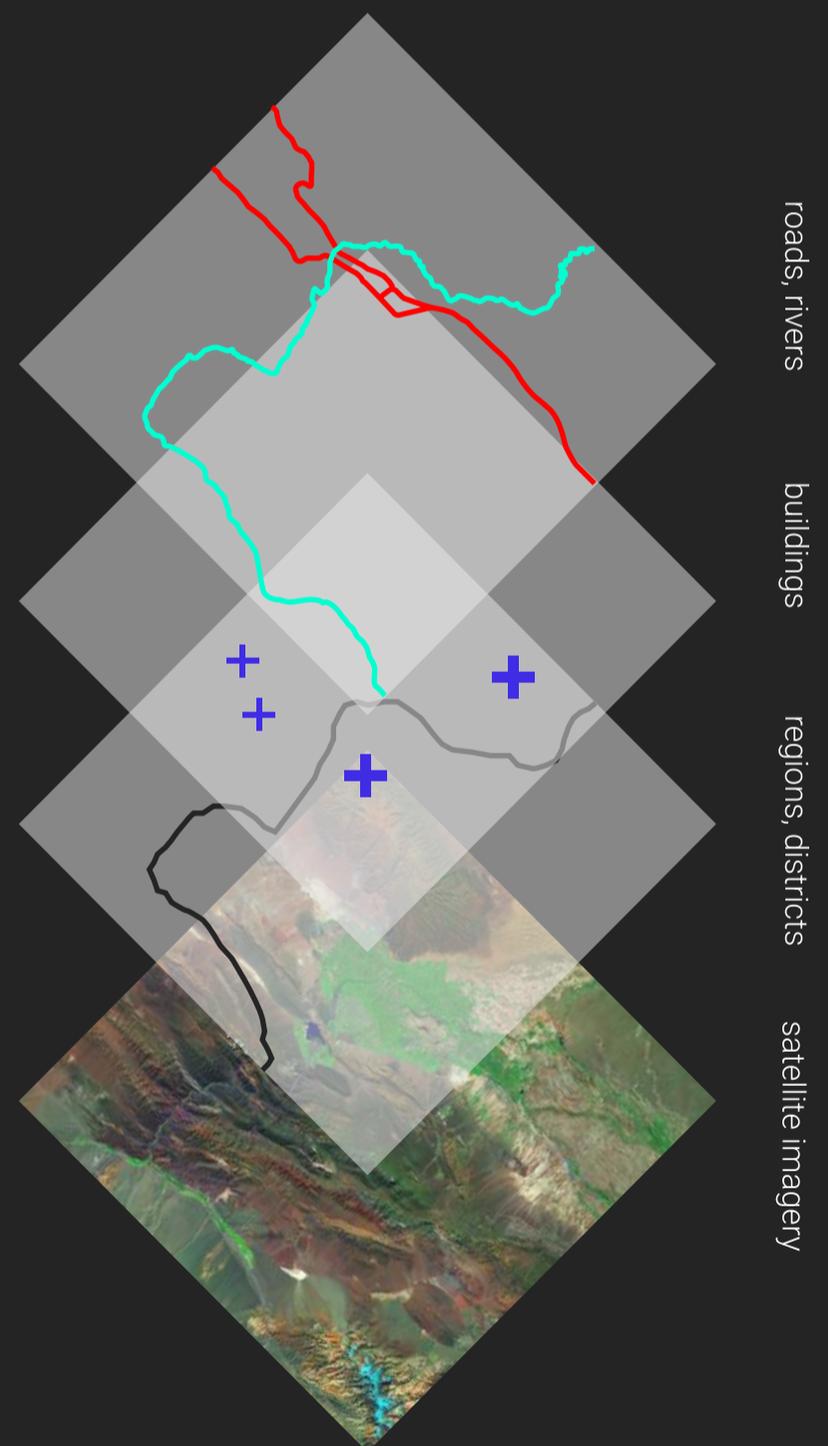
Types of Geospatial Data



GIS Layers

Multi-layered GIS data that integrates spatial and attribute information for advanced spatial modeling and decision-support systems in industries like transportation or defense.

Map is a layer combination





Drone Footage

Dynamic, real-time datasets allowing for highly localized geospatial analysis, especially in areas like construction monitoring or agricultural assessments.



Satellite Imagery

High-resolution datasets used for large-scale pattern detection and predictive modeling in environmental analysis, urban growth, and infrastructure development.



LABEL
YOUR
DATA

Geospatial Data Formats

These formats fall into two main categories: **spatial data formats** and **geospatial image formats**. Each serves a different purpose, but both are essential for accurate geospatial data annotation.

Spatial Data Formats

Specialized formats used for storing and managing geospatial information:

- **Vector formats:**
GeoJSON, KML, Shapefile, WKT – used to represent geographic features like points, lines, and polygons.
- **Raster formats:**
ESRI Grid, GeoTIFF, JPEG 2000, NITF – used to store spatial information in a grid of pixels.
- **Navigational standards:**
AIS and GPS – formats used by location-tracking devices.
- **Geodatabases:**
PostgreSQL/PostGIS – used to store spatial data in database systems.
- **Unstructured data:**
Text or other documents that contain location references.

Remote sensor data:

Hyperspectral, Multispectral, Lidar, Radar – used for collecting data from sensors and satellites.

OGC web standards:

WCS, WFS, WMS, WMTS – protocols for serving geospatial data over the web.

Geotagged content:

Geotagged logs, pictures, videos, social media – digital content that includes location data.

Geospatial Image Formats

These formats relate to image data used within Geographic Information Systems (GIS):

- **JPEG/JPG:**
Common for compressed images but not ideal for GIS due to quality loss from compression.
- **PNG:**
Popular for web graphics, supports lossless compression, but less common in GIS.



GeoTIFF:

A georeferenced version of TIFF, widely used in GIS to position images accurately on the Earth's surface.

ECW:

Known for highly efficient compression, ideal for storing large geospatial datasets.

JPEG2000:

An improvement over traditional JPEG, offering better compression with less quality loss.

SID (MrSID):

Used for large images, enabling easy viewing at different resolutions.

NITF:

A format used primarily in military and intelligence sectors for imagery with detailed metadata.

TIFF:

A flexible format supporting multiple image types, frequently used in geospatial applications.

To improve geospatial analysis, you should understand spatial data and image format differences for compatible annotation workflows.

Geospatial Data Sources

Satellite Imagery (Remote Sensing)

Offers a global perspective with high-resolution data. Provides the foundation for large-scale analysis in ML models. Satellite imagery is instrumental in environmental monitoring, urban growth analysis, and precision agriculture.

Free datasets:

IEEE DataPort GeoTIFF

Examples:

- Landsat
- Sentinel
- MODIS

These platforms capture multi-spectral and temporal data for time-series analysis and multi-layered geospatial modeling.

Aerial Imagery (Drones and Aircraft)

Aerial imagery from drones offers higher resolution than satellites, ideal for precise studies. Machine learning models use it for object detection, land use, and infrastructure monitoring.



Examples:

- LiDAR
- Orthophotos Aerial LiDAR

Provides accurate 3D data that is particularly useful in terrain analysis, urban planning, and environmental conservation.

Global Positioning System (GPS)

GPS data provides highly accurate location coordinates used in navigation, mapping, and field data collection. In machine learning, GPS data is often integrated into systems requiring real-time tracking and route optimization, such as in transportation or logistics.

Examples:

- Real-time traffic systems
- Fleet management platforms

Geographic Information Systems (GIS)

GIS is a cornerstone technology for integrating, managing, and visualizing spatial data from multiple sources. In machine learning workflows, GIS layers are used to augment models with spatial attributes, such as land use patterns, hydrology, or infrastructure layouts.

Examples:

- ArcGIS
- QGIS

GIS systems allow for complex spatial analysis, integrating datasets like remote sensing, GPS, and field data to enhance model performance.

LiDAR (Light Detection and Ranging)

LiDAR is a laser-based remote sensing technology that provides highly detailed 3D point clouds, which are essential for topographic mapping and infrastructure monitoring. In machine learning applications, LiDAR data is used for tasks like terrain classification, obstacle detection, and 3D mapping in urban or forest environments.

OpenStreetMap (OSM)

OpenStreetMap is a crowdsourced platform offering detailed geospatial data on infrastructure like roads and buildings. It's commonly used in machine learning for urban planning, disaster response, and transportation systems needing wide geographic coverage.



Survey Data

Ground-based survey data provides accurate localized geospatial information, often used in machine learning for high-precision mapping of property boundaries, infrastructure layout, and land development planning.

Census and Demographic Data

Census data supports population studies, land use, and economic development. Combined with geospatial data, it aids machine learning in predicting urban growth, resource use, and social trends.

Examples:

- U.S. Census Bureau
- WorldPop

These datasets are critical for developing predictive models in public policy, infrastructure planning, and market analysis.

Mobile Mapping

Mobile mapping collects real-time geospatial data using mobile devices, often used in machine learning for traffic monitoring, urban development, and location-based services. Its dynamic data improves predictive models and decision-making in logistics and urban planning.

Training Data Requirements

Determining the amount of training data needed for machine learning models using geospatial data depends on several factors:

Data Granularity

Higher-resolution datasets require more detailed annotations and larger volumes of data to achieve high accuracy, especially in tasks like object detection or segmentation.

Spatial and Temporal Coverage

Models that need to generalize across various regions or timeframes require diverse datasets that capture different environmental or urban conditions.

Representative Training Data

High-quality, diverse datasets are key to training effective models. When annotating geospatial data, ensuring representation across different regions, climates, and environments enhances the model's ability to generalize.





Model Complexity

More complex models, such as those used for 3D terrain analysis or predictive climate modeling, require vast amounts of geospatial data to improve learning and avoid overfitting. The threshold for "enough" data depends on these variables, along with the specific use case and model architecture.



Types of Annotations Used for Geospatial

Advanced annotation techniques are pivotal in ensuring high model performance, with key annotation types including:



Polygons

Used to precisely delineate irregular features such as buildings, land plots, vegetation, or flood zones. Polygons are widely applied in tasks requiring detailed geographic boundaries, such as cadastral mapping and land-use planning.



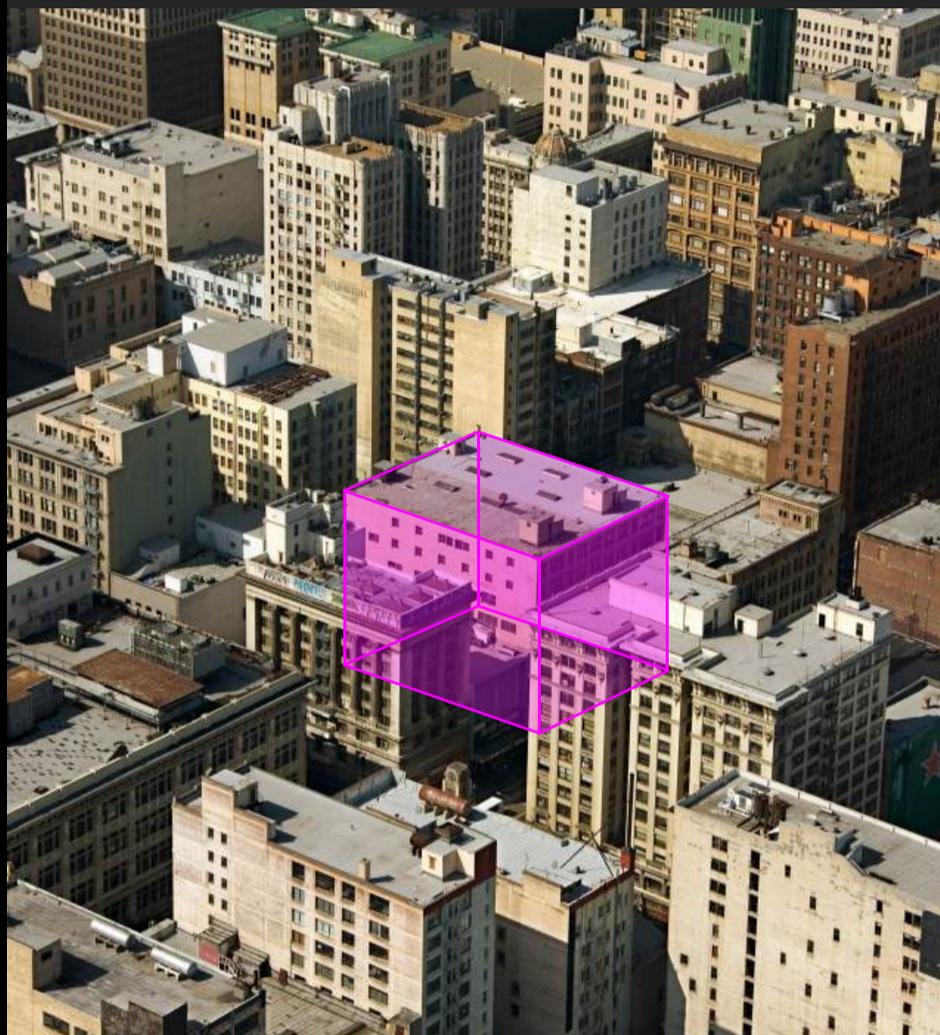
• • **Keypoints**

Used for annotating specific, significant points of interest, such as road intersections or landmarks. Keypoints are critical in topological mapping and routing optimization algorithms.



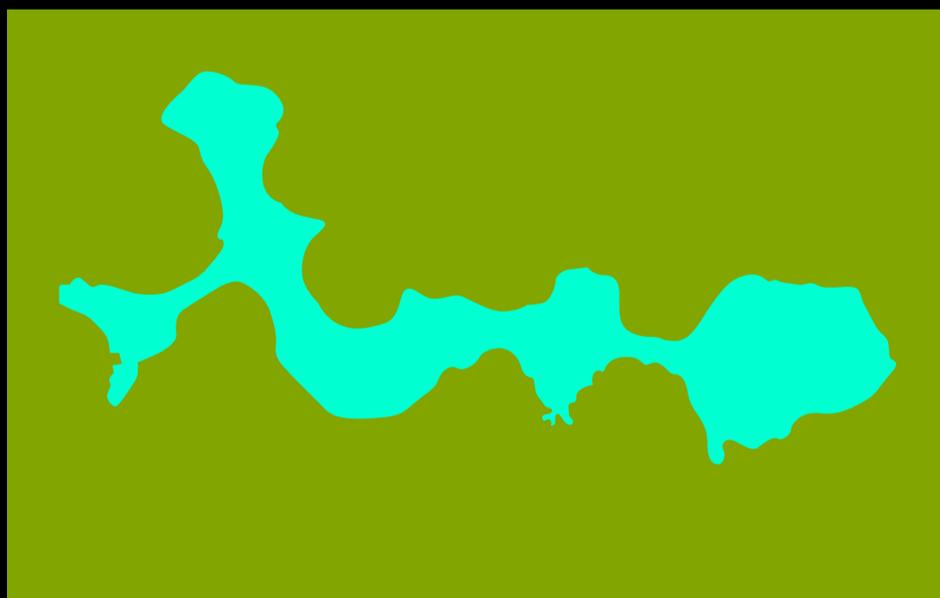
Cuboids

Provide 3D annotation for volumetric data, such as obstacles or buildings in urban environments, enhancing the precision of autonomous vehicle models in 3D space.



Semantic Segmentation

Assigns labels to each pixel in an image for fine-grained classification, distinguishing features like roads, water bodies, and buildings. It's essential for high-resolution tasks like environmental monitoring.



Techniques to Use for Geospatial Data Annotation

Preprocessing Techniques

Techniques like pansharpening and atmospheric correction are crucial for improving image quality and annotation accuracy, especially with very high-resolution satellite data. They optimize imagery for clearer, more precise feature identification.

Pansharpening: Merging High Resolution and Multispectral Data

Pansharpening combines a high-resolution black-and-white image with a lower-resolution color image. This creates a sharper image that helps annotators identify objects like buildings, roads, or wildlife more clearly.

Atmospheric Correction: Enhancing Image Consistency

Atmospheric correction adjusts for distortions caused by the atmosphere, ensuring image consistency. This is important for projects covering large areas or different timeframes, as it improves accuracy across varying conditions.

Application in Automated Annotation Systems

These preprocessing steps enhance the quality of datasets used for machine learning. Better images lead to more accurate annotations, improving automated systems' ability to detect objects like wildlife in future images.

Annotation Approaches

Manual Annotation

Involves human annotators labeling data to ensure accuracy, particularly useful for handling edge cases or complex scenarios. Human-in-the-loop systems are essential for high-quality annotations, especially in instances where automated systems struggle, such as occlusions or ambiguous boundaries.

Semi-Automated Annotation

Combines human expertise with automation. Algorithms handle initial annotations, while humans refine outputs, balancing efficiency and accuracy by reducing repetitive tasks and ensuring quality.



● Automated Annotation

Relies on ML models to fully automate the annotation process, especially effective in large-scale projects. While this method can handle vast datasets, it's crucial to have rigorous validation methods to avoid errors, making it suitable for tasks where large volumes of data are processed, like route optimization or object detection in satellite imagery.

Annotation Techniques

Geospatial data annotation involves various techniques to extract valuable insights from satellite imagery for training AI/ML algorithms:

● Geotagging

This technique adds metadata to digital maps, such as geographic coordinates (latitude, longitude), timestamps, and links to other resources. It enriches data with location-specific details.

● Place Name Recognition

Part of Named Entity Recognition (NER), this method identifies place names in unstructured text, helping NLP systems detect geographic references.

● Land Use Classification

This approach categorizes land areas based on their current or intended use (e.g., residential, commercial). It's essential for analyzing land use patterns in urban planning.

● Route Annotation

By labeling routes between points, AI systems can calculate optimal paths, improving navigation and route planning.

● Point of Interest Annotation

This method identifies key landmarks or locations within geospatial data using pattern recognition and semantic annotation.

These techniques enhance the algorithms' understanding of location-based data, thus serving applications in navigation, urban planning, and geographic analysis.



Advanced Data Processing Techniques

Object-Based Image Analysis (OBIA)

This technique segments an image into meaningful objects, not individual pixels, making it effective for classifying buildings or land areas in geospatial contexts. OBIA is especially useful with high-resolution or multispectral imagery.

Pixel-Based Classification

Essential for achieving pixel-level accuracy, this technique assigns labels to individual pixels, which is ideal for applications such as land cover classification or environmental monitoring, where fine details matter.

Multi-Spectral and Hyperspectral Image Analysis

These advanced image types provide rich data across various wavelengths, supporting precise annotations for agriculture, environmental monitoring, and resource management. Specialized techniques are needed to extract and interpret the information from multiple spectral bands.

Radar and LiDAR Processing

Radar and LiDAR data are essential for terrain modeling and infrastructure analysis. Annotating these datasets requires specific techniques to handle 3D point clouds and range data, facilitating high-precision models in industries like autonomous vehicles or urban planning.

Time-Series and Temporal Analysis

Annotating temporal data is critical for tracking changes over time, such as urban expansion, deforestation, or climate change. Techniques focus on labeling sequential data to allow machine learning models to capture patterns and trends in evolving environments.

Thermal Imaging

Often used in environmental monitoring, disaster management, or defense, thermal imagery requires unique annotation techniques. Thermal data adds another dimension of analysis, focusing on heat signatures, crucial for applications like forest fire tracking or equipment monitoring.



Our Best Practices for Annotating Geospatial Data

1. Annotation Standards and Guidelines

Following industry standards for geospatial data annotation ensures consistency and interoperability across projects. Standards like those from the Open Geospatial Consortium (OGC) help streamline data integration and sharing.

2. Ensuring High-Quality Annotations

Maintaining accuracy and consistency in geospatial annotations is essential for model performance. Implement quality control processes, such as peer reviews or automated error detection, to reduce bias and improve reliability.

3. Leverage Automation

Automation tools should be used strategically to scale efforts without compromising accuracy. Incorporating human review stages ensures the output remains reliable, particularly when dealing with complex data like multispectral imagery or LiDAR.

4. Use Standardized Protocols

Implementing standardized protocols for annotation workflows, such as predefined categories and annotation formats, ensures that the labeling process remains efficient and consistent across teams.

5. Ground Truthing and Validation

Ground-truthing is critical for validating the accuracy of annotations, particularly in large-scale or automated processes. Collaborating with on-the-ground experts or using validated datasets can improve model performance.

6. Dealing with Complex Scenarios

Edge cases like occlusions, sparse data, or ambiguous boundaries are common in geospatial data annotation. Developing robust handling mechanisms, such as using multi-spectral data for clarity or applying human-in-the-loop validation, can resolve these challenges effectively.



7. Regularly Update Models and Labels

Geospatial data is dynamic. Models and annotations must be regularly updated to reflect current conditions, ensuring that predictions remain accurate as new data is integrated.

8. Collaboration with Domain Experts

Working closely with geospatial experts, urban planners, or environmental scientists ensures that annotations align with domain-specific needs, improving the relevance and application of the data.

Geospatial Annotation Tools and Software

Industry Tools Overview

As teams outgrow basic or in-house annotation workflows, advanced tools offer powerful features for handling more complex datasets:

ArcGIS

A leading GIS platform for advanced geospatial analysis and annotation, ideal for scaling teams in urban planning,

environmental monitoring, and defense. It supports large datasets and complex spatial modeling, making it a superior choice for teams outgrowing open-source tools.

QGIS

An open-source platform with features similar to ArcGIS, ideal for smaller projects or teams new to geospatial tools. However, as projects scale, it may need custom development, prompting teams to explore commercial options.

Google Earth Engine

A cloud-based platform offering access to large remote sensing datasets, integrated with machine learning frameworks like TensorFlow. It's ideal for teams aiming to automate and scale geospatial annotation workflows.

Specialized ML Libraries

Libraries like GeoPandas and Rasterio allow teams to build custom ML workflows in Python. These tools help with geospatial data manipulation and annotation, offering more control for complex projects than basic open-source tools.



Tool Selection Criteria

When selecting the right tool for geospatial data annotation, several factors should be considered to ensure compatibility with machine learning models and the specific project requirements:



Scalability

Does the tool handle large-scale, high-resolution datasets efficiently? Tools like Google Earth Engine provide cloud-based scalability, while others may require significant hardware resources for larger projects.



Integration with ML Models

The ability to seamlessly integrate with machine learning frameworks, such as TensorFlow or PyTorch, is critical for workflows involving predictive modeling. Tools offering APIs and strong library support (e.g., Google Earth Engine) tend to offer more streamlined ML integration.



Annotation Features

Depending on the project, look for tools that support various annotation types, such as polygons, segmentation, or keypoints.

Some tools are specialized for tasks like object detection (LiDAR data for autonomous vehicles) while others provide more general annotation capabilities.



Customizability

The ability to customize workflows and add plugins can be crucial, particularly for complex projects requiring specific feature sets. QGIS is a good example of a highly customizable platform, whereas commercial tools may limit flexibility.



Open-Source vs. Commercial vs. Custom Tools

Category	Open-Source Tools	Commercial Tools	Custom Tools
Examples	QGIS, GeoPandas	ArcGIS, Google Earth Engine	Custom-built tools for unique workflows
Pros	<ul style="list-style-type: none">• Customizability• Cost-effective• Strong community support	<ul style="list-style-type: none">• Enterprise support• Seamless integration with large datasets• User-friendly	<ul style="list-style-type: none">• Tailored to specific data types and formats• Precise control over workflows• Optimized for scalability and performance
Cons	<ul style="list-style-type: none">• Requires manual setup• Limited enterprise support	<ul style="list-style-type: none">• High cost• Less flexible than open-source alternatives	<ul style="list-style-type: none">• Requires development time and resources
Best for	Small to medium projects needing flexibility and cost-saving	Large-scale or mission-critical projects needing scalability and real-time data access	Highly specialized projects with unique data formats or scalability demands
When to Use	When customizability and low cost are key factors	When advanced features and enterprise-level support are needed	When off-the-shelf tools are inefficient or lack required flexibility



Leveraging AI and Automation in Geospatial Annotation

AI and automation make geospatial annotation faster by handling tasks like object detection and segmentation. Machine learning helps scale these processes for large datasets.

Case in point, the [Segment Anything Model \(SAM\)](#) improves accuracy and speed when labeling vegetation and buildings in UAV imagery. However, SAM struggles with multispectral data and features like roads and water bodies. Despite these challenges, SAM offers a resource-efficient solution, especially for areas with dominant vegetation or urban landscapes.

Automation reduces time and effort for large projects. Convolutional Neural Networks (CNNs) are commonly used to automate object detection and segmentation. However, automation has limits:

- **Edge Cases:** Automated models can fail with unclear data or complex environments where human judgment is needed.
- **Setup and Maintenance:** Building and maintaining an automated pipeline requires time, resources, and expertise.

Automation is useful, but not always ideal. Complex projects may need a blend of automation and manual effort, leading teams to consider outsourcing instead of relying on in-house annotation.

Challenges in Geospatial Data Annotation

As teams move beyond basic annotation workflows or rely on freelancers, they often encounter several key challenges:

- **Scale Variance**
Handling objects of different sizes in the same dataset can become a significant issue. In-house teams using limited tools may struggle with object detection when features vary greatly in size, requiring advanced techniques for accurate labeling.
- **Spatial Resolution**
Lower image resolution obscures details, while higher resolutions require more processing power and memory. Basic tools often struggle, leading to delays and errors as teams try to scale.



Geographic Biases

Over-representation of certain regions can lead to biased models. Teams that annotate geospatial data in-house often lack the tools needed to ensure balanced representation across multiple areas.

Image Size Complexity

Geospatial images are often far larger than standard images, containing millions of pixels and spectral bands. Teams using basic or open-source tools may struggle with memory usage and file handling as datasets grow.

Geometric Distortion

Correcting geometric distortions in large datasets requires specialized techniques that are not always accessible in open-source tools or freelancing workflows, resulting in the misrepresentation of object positions.

Image Format Variability

With specialized formats like GeoTIFF, teams relying on simpler tools may encounter compatibility issues, increasing the technical difficulty of managing and annotating these images.

Labeling Challenges

Complex environments such as forests or cities require precise labeling, especially with dense and overlapping objects. In-house teams using freelancers may lack the expertise to tackle these challenges effectively.

Data Privacy and Security

Handling sensitive geospatial data, especially in sectors like defense or environmental monitoring, raises privacy concerns. Teams must ensure that their annotation processes comply with regulations such as GDPR.

Environmental and National Security Concerns

Geospatial data in defense and environmental sectors often faces legal constraints, such as restricted satellite image resolution or protections for sensitive environmental data.

Ethical Considerations

Geospatial data raises ethical concerns like biases and privacy risks. Teams must ensure transparency and fairness in its handling and annotation.



Proven Solutions

As teams move away from basic workflows and explore more advanced methods, these proven solutions can help resolve common challenges in scaling geospatial data annotation:

Outsourcing or External Expertise

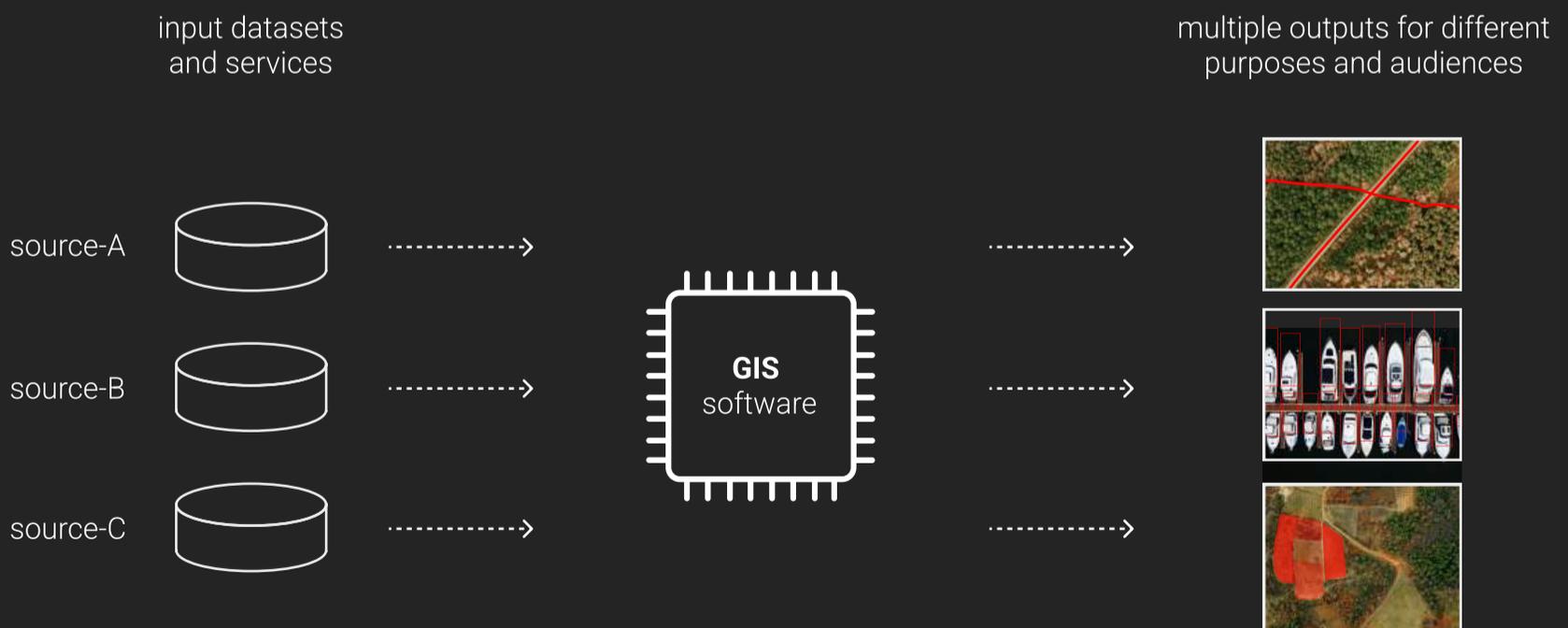
For teams reaching the limits of what freelancers or internal resources can manage, outsourcing to specialized providers ensures access to advanced tools and expertise, minimizing errors and speeding up workflows. External partners bring the necessary quality control mechanisms to maintain accuracy at scale.

Data Augmentation

Techniques like rotations, scaling, and color variations can help address the limitations of in-house workflows by compensating for scale variance and improving model robustness, ensuring more accurate results across various datasets.

Adaptive Learning

By training models to handle multiple spatial resolutions, teams can address one of the primary challenges in in-house annotation: the difficulty of balancing high- and low-resolution imagery. This approach enhances scalability without sacrificing precision.



Scaling Geospatial Annotation Workflows

As geospatial annotation tasks grow in scale, so do the complexities. Several challenges must be addressed to ensure consistent, high-quality outputs:

Data Volume

Large datasets—such as satellite imagery or LiDAR data—cover vast areas and require extensive annotation efforts, making manual workflows impractical for large-scale projects.

Complexity

High-resolution images or multi-dimensional data (e.g., hyperspectral or multi-temporal data) demand specialized annotation techniques, increasing the complexity and effort required.

Quality Control

Maintaining accuracy and consistency across large datasets becomes harder as teams grow, especially when managing manual annotations. Ensuring high-quality annotations at scale requires stringent validation processes.

Outsourcing vs. In-House Annotation

In-House Annotation

✓ PROS

Full Control:

You retain control over the workflow, including tool selection and quality assurance processes.

Customization:

Allows for domain-specific adjustments tailored to your project's needs, ensuring immediate feedback loops.

✗ CONS

Resource Intensive:

Scaling an in-house team is costly and requires continuous management of annotators, infrastructure, and technology. As projects grow, resource allocation can become a challenge.

Errors and Bottlenecks:

In-house teams using freelancers or open-source tools often encounter increased errors and slower output, particularly with complex or large-scale datasets.



Hidden Costs:

While initially cost-effective, the long-term expenses of hiring, training, and managing teams often outweigh the benefits when attempting to scale up.

Outsourcing Annotation

✓ PROS

Scalability:

Outsourcing provides the flexibility to manage larger datasets and complex tasks efficiently, without the growing pains of managing an in-house team.

Cost Efficiency:

Pay-per-task models eliminate the need to maintain costly in-house infrastructure, making outsourcing a more affordable option for many teams.

Expertise and Advanced Tools:

Outsourcing to experts means access to better tools, technologies, and specialized teams, which results in higher-quality annotations and faster project completion.

✗ CONS

Dependency on Providers:

You may rely on third-party providers, though strong communication and clear agreements can mitigate risks.

Why Outsourcing is the Best Solution for Scaling

As data complexity increases and teams realize the limits of in-house annotation (using freelancers or open-source tools), outsourcing becomes an essential step for scaling efficiently.

By leveraging external expertise and advanced tools, outsourcing ensures that you can meet growing data demands without sacrificing accuracy or speed. This allows internal teams to focus on core business activities while maintaining flexibility in handling large volumes of geospatial data.



Our Expertise in Geospatial Annotation

Label Your Data delivers top-tier solutions to help clients scale their geospatial projects effortlessly, with expertise in managing complex geospatial datasets across environmental monitoring and military defense.



Geospatial Annotation for Carbon Monitoring

In collaboration with an Australian carbon abatement agency, we labeled 3,000 satellite rooftop images, identifying solar panels, water heaters, and other equipment despite varying image quality. By working closely with the client, we refined labeling guidelines and conducted real-time reviews, ensuring accurate identification and alignment with their goals.



Satellite-Based Landfill Detection Model Validation

We assisted a US university in validating its landfill detection model using satellite imagery. Our team verified landfill locations with a cross-reference QA approach involving two annotators, who also assigned confidence scores when unsure. This iterative process enabled the client to pause between annotation rounds to test and improve the model.



Geospatial Annotation for Military Defence

For a military defence project, we used satellite imagery to train a model for identifying specific military assets. This required high accuracy and strict security protocols. Our team managed sensitive data on the client's secure platform, ensuring complete confidentiality.

Why Choose Label Your Data

- ✓ **No commitment**
Check our performance based on a free trial.
- ✓ **Flexible pricing**
Pay per labeled object or per annotation hour.
- ✓ **Tool-agnostic**
Working with every annotation tool, even your custom tools.
- ✓ **Data-compliant**
Work with a data-certified vendor: PCI DSS Level 1, ISO:2700, GDPR, CCPA.

RUN FREE PILOT

